Minimizing Unplanned Extubations in the Intensive Care Nursery

Lindsay Barrosse  
*Children's Mercy Hospital*, labarrosse@cmh.edu

Blaire Collins  
*Children's Mercy Hospital*, ccollins@cmh.edu

Cassidy Horton  
*Children's Mercy Hospital*

Jodie Seitzer  
*Children's Mercy Hospital*, jlseitzer@cmh.edu

Brittney Hunter  
*Children's Mercy Hospital*, bchunter@cmh.edu

*See next page for additional authors*

Follow this and additional works at: https://scholarlyexchange.childrensmercy.org/nursing_presentations

Part of the Congenital, Hereditary, and Neonatal Diseases and Abnormalities Commons, Critical Care Nursing Commons, Pediatric Nursing Commons, and the Respiratory Tract Diseases Commons

**Recommended Citation**

Barrosse, Lindsay; Collins, Blaire; Horton, Cassidy; Seitzer, Jodie; Hunter, Brittney; and McKee, Jenny, "Minimizing Unplanned Extubations in the Intensive Care Nursery" (2019). *Nurse Presentations*. 6.  
https://scholarlyexchange.childrensmercy.org/nursing_presentations/6

This Book is brought to you for free and open access by the Nursing at SHARE @ Children's Mercy. It has been accepted for inclusion in Nurse Presentations by an authorized administrator of SHARE @ Children's Mercy. For more information, please contact library@cmh.edu.
Authors
Lindsay Barrosse, Blaire Collins, Cassidy Horton, Jodie Seitzer, Brittney Hunter, and Jenny McKee
Minimizing Unplanned Extubations in the Intensive Care Nursery

Graduate Nurse Residency Program

Lindsay Barrosse BSN, RN
Blaire Collins BSN, RN
Cassidy Horton BSN, RN
Jodie Seitzer BSN, RN
Brittney Hunter BSN, RN, CPN
Jenny Mckee BSN, RN, NIC-RNC, CPST
Acknowledgements

- Dr. Jean Pallotto
- Janet Klein MSN, RN
- Brittney Hunter BSN, RN, CPN and Jenny Mckee BSN, RN, NIC-RNC, CPST
- Beckie Palmer RN, MSN
A3 Overview

A3 for Problem Solving

Theme: Reducing Unexpected Patient Exits in the Intensive Care Nursery

Owner: ICU Graduate Nurse Resident Team

Steps:

1. **Clarify the Problem:**
   - Problem: High number of unexpected patient exits in the ICU of Children's Mercy.
   - Target: To decrease the number of unexpected patient exits from 4% to 2%

2. **Break Down the Problem:**
   - ** Pareto Chart:**
     - ICU Exit Rate
     - Exits from Birth to Feb 1, 2019

3. **Set a Target:**
   - Target goal: to reduce the exit rate of ICU patients from 4% to 2% by February 1, 2019.

4. **Identify Root Causes:**
   - The largest root cause is the number of unexpected patient exits.
     - Patient Specific
     - Non-Technical
     - Diplomat
     - Unforeseen

5. **Standardize and Follow-Up:**
   - Implement the new process to reduce the exit rate.
   - Monitor and evaluate the effectiveness of the new process.

6. **Check Results and Process:**
   - **ETT Hold during X-ray:**
     - September: 48% (28/58)
     - October: 52% (32/62)
     - November: 56% (24/44)
     - December: 54% (22/41)
   - **Documentation indicating location during X-ray:**
     - September: 78% (58/75)
     - October: 80% (54/68)
     - November: 90% (36/40)
     - December: 100% (75/75)

   - **Graph:**
     - Right UPE Exit Rate
     - Left UPE Exit Rate

   - **Interactions:**
     - Standard of care for ETT
     - Decrease ETT mismanagement
     - Increase awareness and education
     - Multi-disciplinary care coordination

   - **Goals:**
     - Patient exit rate during X-ray
     - Improve ETT during X-ray
     - Educate on ETT during X-ray
     - Increase documentation

   - **Conclusion:**
     - The process needs to be standardized to implement safe management of all patients.
     - All patients should be evaluated for unexpected patient exits.
     - The process will be evaluated for future directions.
Patients that experience an unplanned extubation (UPE) in the Intensive Care Nursery (ICN) can have complications such as increased length of stay, code events, airway trauma, hypoxemia, and pulmonary injury. The lack of standardization of Endotracheal Tube (ETT) management is a contributing factor to increased UPEs. By ensuring compliance of a standardized process for ETT management, we hope to achieve a reduction in UPEs in the Children’s Mercy ICN. The current goal for the ICN at Children’s Mercy is <1 UPE out of 100 ventilator days and the ICN year to date current rate of UPE is 1.2.
Breakdown the Problem

Pareto Chart for UPE
2018 (n=44)

UPE Cause
- Patient Specific
- Nocor Issues
- Unintended
- Repeats
- Task Issues
- Repetitions
- Procedures
- Screening/Emerg
- Auding

- Number of Occurrence
- Cumulative %
Set a Target

- Target goal is to increase holding of ET tube during an x-ray from 48% to 70% by February 1, 2019.
Inconsistent application of ET tube expectations
- ET tube will be held during chest X-rays
- Location of ET tube during X-rays will be documented real-time

UPE BY CAUSE

- Patient specific: 21%
- Neobar issues: 18%
- Unwitnessed: 16%
- Retaping: 16%
- Procedures: 7%
- Repositioning: 7%
- Secrets/Emesis: 2%
- Holding: 2%
- Tape issues: 11%

Jan – Oct 15, 2018 (n=44)
No UPE November

Education & Training in the ICN

- Practice changes
- Expectations for chest x-ray
- No UPE toolkit
- Charting change
- Education reminders
Develop and Implement Countermeasures

AIM STATEMENT
Target goal is to increase holding of ET tube during an X-ray from 48% to 70% by Feb 1, 2019

KEY DRIVERS
- Standard of care for ETT
- Decrease ETT manipulations
- Increase awareness and education
- Multi-disciplinary care coordination

INTERVENTIONS
- Audits of ETT holding during X-ray
- Educate on need to hold ETT during X-ray
- Educate on real-time documentation
- Signage
- RT present at bedside for X-ray
- Educate radiology technicians
Develop and Implement Countermeasures

**AIM STATEMENT**
Target goal is to increase holding of ET tube during an X-ray from 48% to 70% by Feb 1, 2019

**KEY DRIVERS**
- Standard of care for ETT
- Decrease ETT manipulations
- Increase awareness and education
- Multi-disciplinary care coordination

**INTERVENTIONS**
- Audits of ETT holding during X-ray
- Educate on need to hold ETT during X-ray
- Educate on real-time documentation
- Signage
- RT present at bedside for X-ray
- Educate radiology technicians
Develop and Implement Countermeasures

AIM STATEMENT
Target goal is to increase holding of ET tube during an X-ray from 48% to 70% by Feb 1, 2019

KEY DRIVERS
- Standard of care for ETT
- Decrease ETT manipulations
- Increase awareness and education
- Multi-disciplinary care coordination

INTERVENTIONS
- Audits of ETT holding during X-ray
- Educate on need to hold ETT during X-ray
- Educate on real-time documentation
- Signage
- RT present at bedside for X-ray
- Educate radiology technicians
## Develop and Implement Countermeasures

### No UPE November: Holding ETT during Chest Tube Audit

<table>
<thead>
<tr>
<th>Date:</th>
<th>Bedspace:</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was a CXR done during shift?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, was ETT held during CXR?</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If held, by whom?</th>
<th>RN</th>
<th>RT</th>
<th>NNP</th>
<th>MD</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>If CXR was done, was documentation completed noting location of ETT during CXR?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>For all ETT patients:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Does RN know position of ETT is to be documented for all CXRs?</td>
<td>YES</td>
</tr>
<tr>
<td>Does RN know where to document position of ETT for CXRs?</td>
<td>YES</td>
</tr>
</tbody>
</table>
Develop and Implement Countermeasures

**AIM STATEMENT**
Target goal is to increase holding of ET tube during an X-ray from 48% to 70% by Feb 1, 2019

**KEY DRIVERS**
- Standard of care for ETT
- Decrease ETT manipulations
- Increase awareness and education
- Multi-disciplinary care coordination

**INTERVENTIONS**
- Audits of ETT holding during X-ray
- Educate on need to hold ETT during X-ray
- Educate on real-time documentation
  - Signage
- RT present at bedside for X-ray
- Educate radiology technicians
Signage for ETT Cards

Design for No UPE November

Hold tube for every x-ray

Design #2 for everyday use

Hold tube for every x-ray
Develop and Implement Countermeasures

AIM STATEMENT

Target goal is to increase holding of ET tube during an X-ray from 48% to 70% by Feb 1, 2019

KEY DRIVERS

- Standard of care for ETT
- Decrease ETT manipulations
- Increase awareness and education
- Multi-disciplinary care coordination

INTERVENTIONS

- Audits of ETT holding during X-ray
- Educate on need to hold ETT during X-ray
- Educate on real-time documentation
- Signage
- RT present at bedside for X-ray
- Educate radiology technicians
Intubated patients

Please make sure an RT and RN are present to verify tube placement and to hold the tube during every x-ray.
Check Results and Process

**ETT held during X-ray:**
- September: 48%
- October: 50%
- November: 85%
- December: 94%
- January: 91%

**Documentation indicating location during X-ray:**
- September: 79%
- October: 88%
- November: 98%
- December: 100%
- January: 86%

Night Shift UPE Audits
Standardize and Follow Up

- The process needs to be standardized to implement safe management of all patients.
- We followed all intubated patients to collect our data.
- Unit committee will continue to audit and monitor compliance to standards. If compliance decreases, then unit will re-educate or re-approach and find a different process that is effective. If successful, we will share our knowledge and spread to other populations.
References

References


References

• Surana, P. (2014). *Preventing accidental extubations in NICU - a quality improvement project*. Archives of Disease in Childhood [Abstract].